State of Michigan

2013 Semi-Annual Report
Michigan Department of Community Health
Surveillance for Healthcare-Associated and Resistant Pathogens (SHARP) Unit

Standardized Infection Ratios (SIRs) for NHSN Modules
All Data and Centers for Medicare and Medicaid Services (CMS) Required Elements
State of Michigan 2013 H1

Infection Type	MI Hosp[1]	MI Obs[2]	MI Pred[3]	MI SIR[4]	MI SIR p-value[5]	MI 95% CI[6]	MI CMS Hosp[7]	MI CMS Obs[8]	MI CMS Pred[9]	MI CMS SIR[10]	MI CMS SIR p-value[11]	MI CMS SIR 95% CI[12]
CAUTI[13]	86	569	447.900	1.270↑	<0.0001	1.169, 1.378	79	516	378.407	1.364↑	<0.0001	1.250, 1.485
CLABSI[14]	83	167	403.811	0.414↓	<0.0001	0.354, 0.480	79	139	338.862	0.410↓	<0.0001	0.346, 0.483
SSI[15]	80	513	577.191	0.889↓	<0.0001	0.814, 0.968	-----	-----	-----	-----	-----	-----
SSI COLO[16]	79	468	537.074	0.871↓	0.0346	0.765, 0.989	80	138	141.912	0.972	0.7840	0.820, 1.145
SSI HYST[17]	74	172	152.452	1.128	0.2654	0.908, 1.386	81	44	34.220	1.286	0.1050	0.946, 1.711
MRSA Bac LabID[18]	82	180	173.397	1.038	0.6359	0.895, 1.198	82	180	173.397	1.038	0.6359	0.895, 1.198
CDI LabID[19]	82	1,790	1,854.14	0.965	0.1382	0.921, 1.010	82	1,790	1,854.1	0.965	0.1382	0.921, 1.010

☐ **Michigan Data for CMS Reporting**

[1]Total number of Michigan hospitals sharing data with the SHARP Unit for aggregate reporting.
[2]Michigan Observed: Number of infections reported during the time frame overall for each module.
[3]Michigan Predicted: The overall number of infections predicted based on the type of hospital unit(s) under surveillance.
[4]Michigan SIR: Standardized Infection Ratio: Ratio of observed events compared to the number of predicted events, accounting for unit type or procedure. An SIR of 1 can be interpreted as having the same number of events that were predicted. An SIR that is between 0 and 1 represents **fewer** events than predicted, while an SIR of greater than 1 represents **more**. ↑: Michigan had significantly more infections than expected, ↓: Michigan had significantly fewer infections than expected.
[5]P-value: An SIR p-value of <0.05 is considered significantly different than expected. It can show either significantly more infections (if the SIR is greater than 1 and the p-value is <0.05) or significantly fewer (if the SIR is less than 1 and the p-value is <0.05).
[6]Michigan 95% CI: 95% confidence interval around the SIR estimate. A 95% CI indicates that 95% of the time, the actual SIR will fall within this interval.
[7]Number of Michigan hospitals sharing data with the SHARP Unit that fulfills requirements set by the Center for Medicare and Medicaid Services (CMS).
[8]MI CMS Observed: Number of infections reported during the time frame that meet CMS reporting requirements.
[9]MI CMS Predicted: The number of infections predicted based on the type of hospital unit(s) under surveillance and including only data that meet CMS reporting requirements
[10]Michigan CMS SIR: Standardized Infection Ratio including only data that meet CMS reporting requirements. ↑: Michigan's CMS SIR showed significantly more infections than expected, ↓: Michigan's CMS SIR showed significantly fewer infections than expected.
[11]MI CMS SIR p-value: the SIR p-value indicating statistical significance in data that meet CMS reporting requirements.
[12]MI CMS SIR 95% CI: 95% confidence interval indicating statistical significance in data that met CMS reporting requirements.
[13]Catheter-Associated Urinary Tract Infection, [14]Central Line-Associated Blood Stream Infection, [15]Surgical Site Infection, [16]Colon Surgery, [17]Abdominal Hysterectomy,
[18]MRSA BacLabID: Inpatient facility-wide MRSA bacteremia Laboratory-Identified Event, [19]CDI LabID: Inpatient facility-wide *Clostridium difficile* Laboratory-identified Events
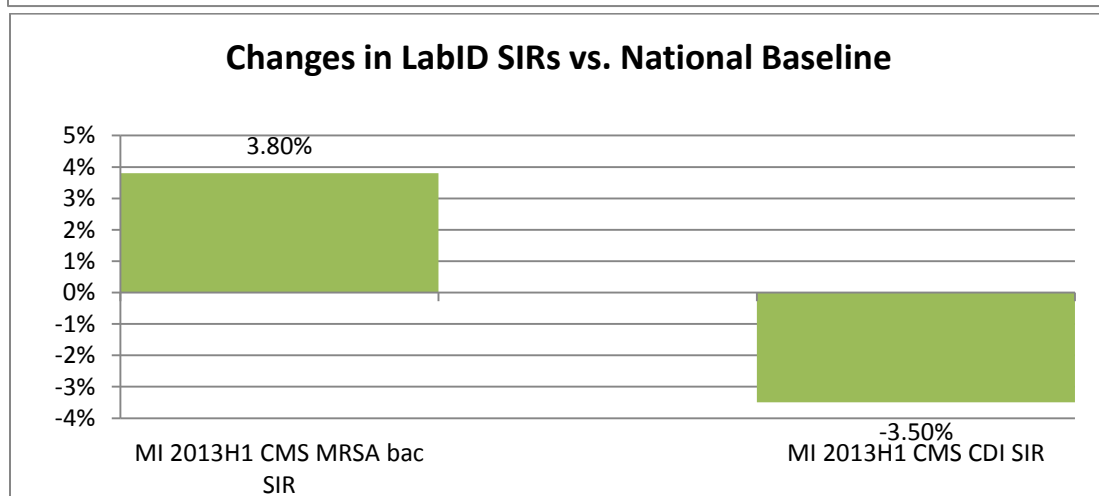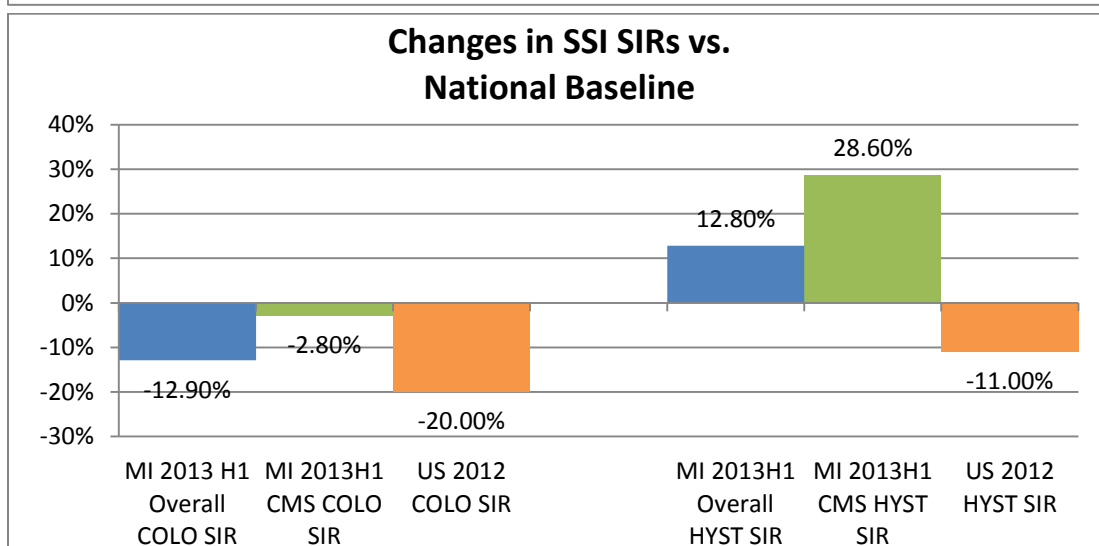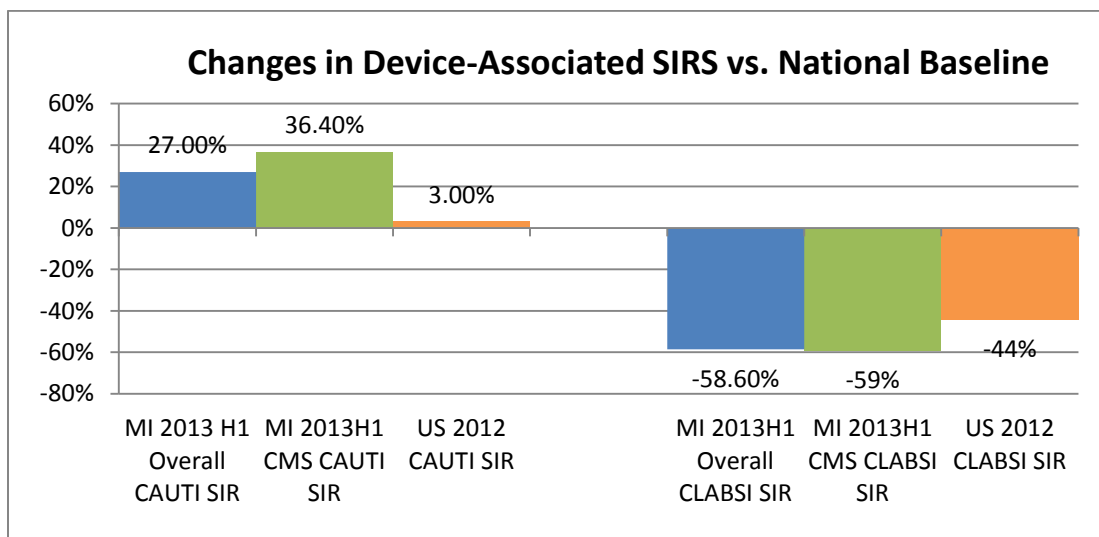
This report includes Michigan NHSN data for the first half of the 2013 calendar year. It demonstrates aggregate results from all data provided by Michigan hospitals to the MDCH SHARP Unit, as well as the subset of that data which are reported to the Centers for Medicare & Medicaid Services (CMS) to fulfill reporting requirements. All hospitals sharing data with the SHARP Unit will receive a corresponding individualized report (including non-acute care hospitals) comparing their hospital data to the CMS data shown in this report. Comprehensive Michigan Aggregate HAI Surveillance Reports can be found at www.michigan.gov/hai.

Standardized Infection Ratios (SIRs) for NHSN Modules: All Data and CMS-Required Elements
This table provides Standardized Infection Ratios (SIRs) for the six modules required by CMS in 2013, and displays both Michigan's **aggregate semi-annual** and a subset of **CMS-required data**. Aggregate SIRs include data from all locations for the catheter-associated urinary tract infection (CAUTI) and central-line associated bloodstream infection (CLABSI) modules. CMS-required SIRs include adult, pediatric, and neonatal intensive care unit (ICU) data for CLABSIs and adult and pediatric ICU data for CAUTIs. Aggregate surgical site infection (SSI) SIRs include superficial, deep, and organ/space SSIs as well as those identified on admission, readmission, and via post-discharge surveillance. CMS SSIs include only deep incisional primary and organ/space SSIs with an event date within 30 days of the procedures and use only age and American Society of Anesthesiologists (ASA) score to determine risk for colon surgeries (COLO) and abdominal hysterectomies (HYST). Aggregate and CMS-required SIRs are the same for MRSA bacteremia facility-wide Laboratory-identified data and *Clostridium difficile* facility-wide Laboratory-identified data as the SIR calculation was developed for CMS reporting purposes. Descriptions of terms used in the tables can be found in the table footnotes in the report.

Descriptions of Graphs

The individual graphs display a comparison of the Michigan CMS SIR for each of the CMS-required modules as well as the overall MI SIR for each module and the 2012 US SIR (not available for LabID data). The percentage listed on each bar shows the percent difference each respective SIR is from the national baseline. National baseline data were collected in 2006-2008 for CLABSI and SSI, 2009 for CAUTI, and 2011 for CDI and MRSA.

Changes in Device-Associated SIRS vs. National Baseline

- MI 2013 H1 Overall CAUTI SIR: 27.00%
- MI 2013H1 CMS CAUTI SIR: 36.40%
- US 2012 CAUTI SIR: 3.00%
- MI 2013H1 Overall CLABSI SIR: -58.60%
- MI 2013H1 CMS CLABSI SIR: -59%
- US 2012 CLABSI SIR: -44%

Changes in SSI SIRs vs. National Baseline

- MI 2013 H1 Overall COLO SIR: -12.90%
- MI 2013H1 CMS COLO SIR: -2.80%
- US 2012 COLO SIR: -20.00%
- MI 2013H1 Overall HYST SIR: 12.80%
- MI 2013H1 CMS HYST SIR: 28.60%
- US 2012 HYST SIR: -11.00%

Changes in LabID SIRs vs. National Baseline

- MI 2013H1 CMS MRSA bac SIR: 3.80%
- MI 2013H1 CMS CDI SIR: -3.50%

Please contact Allison Murad at MuradA@michigan.gov or at 517-335-8199 with any questions, comments, or suggestions regarding this highlight sheet or your individual hospital report.